

CLAIMS

1. A method for coordinating operation modes of a GPRS network in which a mobile subscriber is registered for communications services, comprising:
 - transmitting a network message to the mobile subscriber via a primary network operation mode;
 - if a failure condition occurs in the primary network operation mode, automatically switching the operation mode of the GPRS network to a secondary network operation mode; and
 - if the primary network operation mode is recovered, switching the operation mode of the network back to the primary network operation mode.
2. The method of claim 1, further comprising storing a registered preferred list of network operation modes selected by the mobile subscriber.
3. The method of claim 1, wherein the primary network operation mode is a first network operation mode (NOM1) of the GPRS network.
4. The method of claim 3, wherein the paging message is transmitted from a mobile switching center (MSC) to a base station controller (BSC) through a Serving GPRS Support Node (SGSN), and then to the mobile subscriber.
5. The method of claim 1, wherein the secondary network operation mode is a second network operation mode (NOM2) of the GPRS network.
6. The method of claim 1, further comprising:
 - switching the operation mode of the network to a third-preferred network operation mode when the secondary operation mode is failed.
7. The method of claim 6, wherein the third-preferred operation mode is a third network operation mode (NOM 3) of the GPRS network.
8. A method for coordinating operation modes of a GPRS network in which a mobile subscriber subscribes for communications service, comprising:

transmitting a network message to a mobile subscriber, wherein the network message is sent, based on a preference of the mobile subscriber, via one of a first operation routing and a second routing, wherein in the first routing, the network message is sent via a first interface and a second interface, and in the second routing, the paging message is sent via a third interface,

if the first routing is unavailable for transmitting the network message, transmitting the network message to the mobile subscriber via the second routing; and

after the first routing is recovered, transmitting further network messages to the mobile subscriber via the first routing.

9. The method of claim 8, wherein in the first routing, the network message is sent via one of circuit-switched and packet-switched channels, and in the second routing, the network message is sent via the circuit-switched channels.

10. The method of claim 8, wherein the first interface is between a mobile switching center (MSC) and a Serving GPRS Support Node (SGSN), the second interface is between the SGSN and a base station controller (BSC), and the third interface is between the MSC and the BSC.

11. The method of claim 8, further comprising resetting a BTS Virtual Circuit Identifier (BVCI) when the first routing is available.

12. The method of claim 11, wherein the reset of the BVCI is initiated by either a SGSN when the first interface is available or by a BSC when the mobile subscriber wishes to transmit signals via the first routing.

13. The method of claim 10, wherein in the first routing, when the first interface is unavailable, the method comprises:

transmitting a failure indication message from the SGSN to the BSC indicating that the first interface is unavailable;

receiving a failure acknowledge message from the BSC and switching the operation mode of the network to the second routing; and

the MSC transmitting the network message to the mobile subscriber via the third interface.

14. The method of claim 13, further comprising:
 - when the first interface is recovered, the SGSN sending a recovered message to the BSC indicating that the first interface is recovered;
 - BSC responding to the recovered message and switching the operation mode to the first routing; and
 - MSC transmitting the further network messages to the mobile subscriber via the first and second interfaces.

15. The system of claim 13, further comprising:
 - sending a BTS (base transceiver station) virtual circuit identity (BVCI)-block signal from the SGSN to the BSC; and
 - BSC responding to the BVCI-block signal by sending a BVCI-block-acknowledge signal and switching the operation mode of the network to the second routing.

16. The method of claim 8, when the second routing is selected as a primary operation mode and the first routing is available, further comprising:
 - transmitting a first-interface indication message indicating that the first interface is available;
 - responding to the first-interface indication message, transmitting an acknowledge signal confirming that the second routing process is preferred; and
 - transmitting a block message to block the first interface to ensure that the network message is sent to the mobile subscriber via the third interface.

17. The method of claim 16, further comprising:
 - transmitting a BVCI-unblock message indicating that the first interface is available; and
 - responding to the BVCI-unblock message, transmitting a BVCI-block signal to block the first interface to ensure that the network message is sent to the mobile subscriber via the third interface.

18. The method of claim 17, wherein when the mobile subscriber wishes to use the first routing process,
 - transmitting a first-routing request message from the mobile subscriber to request for a connection to the first routing process;

responding to the request message and transmitting a unblocked message to unblock the first-interface; and

transmitting/receiving packet signals to/from the mobile subscriber via the first routing process.

19. A system for coordinating operation modes of a GPRS network, the system comprising:

a mobile station controller (MSC) for transmitting/receiving calls to/from the mobile subscriber;

a base station control center (BSC) for managing the calls transmitted/received to/from the mobile subscriber;

a Serving GPRS support node (SGSN) located between the BSC and the MSC; and

a database for storing a preferred list of network operation modes of the GPRS network that the mobile subscriber registers for,

wherein the operation modes of the GPRS network are automatically switched according to the registered preferred list of operation modes based on an interface status between the MSC and the SGSN.

20. The system of claim 19, wherein the preferred list of network operation modes stored in the database that is accessible by the BSC.

21. The system of claim 19, wherein the SGSN reports a change of the status of the interface between the SGSN and the MSC to the BSC so that the BSC decides what network operation mode to use based on the preferred list stored in the database.